

Tube mills are no problem for Belzona

ID: 9701

Industry: *Cement*

Customer Location: *Germany*

Application: *SHM-Solids Handling Machinery*

Application Date: *January 2021*

Substrate: *Other*

Products: *Belzona 1812 (Ceramic Carbide FP), Belzona 4111 (Magma-Quartz), Belzona 4911 (Magma TX Conditioner)*

Problem

Two rows of lifting liners (steel with welded wear layer) are mounted in the pre-drying chamber of the tube mill. Cement dust gets between the lifting liners and the mill wall, which leads to abrasion on the mill wall over the years. To achieve a level and strong support surface so that new lifting liners could be installed, the mill wall in these areas was rebuilt to its original dimensions using Belzona materials.



Tube mill grit blasted by the customer.



The damaged area repaired with Belzona 4111 (Magma-Quartz).



Close shot of the application in process.



The damaged area half way covered with Belzona 1812 (Ceramic Carbide FP).

Application Situation

Due to the permanent abrasive environment, the lifting liners must be replaced every 2-3 years.

A pre-drying chamber was repaired on two tube mills, one in 2021 and one in 2022. The customer reported that the lifting liners on the first tube mill were replaced again in winter 2023, and the area under the liners, which had previously been repaired with Belzona, still looked like new.

Another replacement with the same Belzona solution is planned for January/February 2025.

Application Method

The surface to be repaired was grit blasted by the customer. A steel frame was prefabricated so that Belzona 4111 (Magma-Quartz) could be applied at the exact height. Another steel frame with different dimensions was prefabricated so that Belzona 1812 (Ceramic Carbide FP) could be applied at the exact height.

The repair system was engineered and carried out together with the customer. The procedure was the same across the entire

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circumference - all surfaces were ultimately covered with 1812. Application process:

Installation of the auxiliary frame by the customer to achieve the correct height; conditioning with Belzona 4911 (Magma TX Conditioner), substrate resurfaced with up to 4mm Belzona 4111 (Magma-Quartz), roughening of the Belzona 4111, final layer approx. 4mm of Belzona 1812 (Ceramic Carbide FP) for wear protection. Due to the complicated geometry of the pre-drying chamber, only every second field was initially processed with Belzona 4911 (Magma TX Conditioner)/4111 (Magma-Quartz) (the mill was turned for ¼ in between), the final coating with Belzona 1812 (Ceramic Carbide FP) was also carried out in two stages – on every second field, the remaining ones in the next round. Unfortunately, there is no photo of the finished application.

Belzona Facts

Due to permanent abrasion and wear conditions, the lifting liners have to be replaced every 2-3 years. None of the alternatives have proven to be a permanent solution. The customer was very satisfied with the Belzona products after the first application, as the repaired area looked like new even after 2 years in service. This saves them a lot of money - no further repairs are necessary in this area, and most importantly, the expensive tube mill does not have to be replaced.

The customer is so satisfied that they plan to carry out further repairs with the same Belzona solution in spring 2025.

6 kg of Belzona 4911 (Magma TX Conditioner), 210 kg of Belzona 4111 (Magma-Quartz) and 180 kg of Belzona 1812 (Ceramic Carbide FP) were used to repair a single pre-drying chamber.

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